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EXAMINER
FLETCHER, M

ART UNIT	PAPER NUMBER
2837	

DATE MAILED: 09/13/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

☒ Responsive to communication(s) filed on _Dec 8, 1999_

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under _Ex parte Quayle_, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire _____3_____ month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) _1-78_ _____ is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☒ Claim(s) _1-19, 24, 25, 43, 48-50, and 55_ _____ is/are allowed.

☒ Claim(s) _20, 23, 26-39, 41, 42, 44, 46, 47, 51, 54, 56-66, and 68-77_ _____ is/are rejected.

☒ Claim(s) _21, 22, 40, 45, 52, 53, 67, and 78_ _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____ .

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____ .

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). ___3___

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Claim Objections

1.   Claim 26 is objected to because of the following informalities:

In claim 26, line 2, the word "a" should preceed the word "storage" .

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

3.   Claim 20 is rejected under 35 U.S.C. 102(e) as being anticipated by Gulick (5,763,801).

As recited in claim 20, Gulick discloses a method of generating a tone waveform by a

processor which executes a waveform value calculating process, in parallel with another process,

for calculating a tone waveform value for each sampling timing on the basis of received

performance information as disclosed in the abstract and discussed in column 5, lines 24-33, the

method comprising the steps of: calculating a given quantity of tone waveform values in advance

of given read timing, by executing the waveform value calculating process based on the

performance information as discussed in column 5, lines 37-55; storing the tone waveform values

calculated by the calculation step in storage locations of a storage section indicated by writing

location data and renewing the writing location data as discussed in column 5, lines 18-21;

generating a tone waveform by reading out, from storage locations of the storage section

indicated by reading location data, the tone waveform values at the read timing arriving at given

time intervals and then renewing the reading location data as discussed in column 5, line 65

through column 6, line 22; and controlling, in response to a difference between the writing

location data and reading location data, calculation progression of the step of calculating as

discussed in column 9, line 53 through column 10, line 5.

4.   Claims 20, 26, 28, 30-39, 41, 44, 51, 57-66, and 68-77, are rejected under 35

U.S.C. 102(e) as being anticipated by Tamura (5,895,877).

As recited in claims 20, 44, and 51, Tamura discloses a method of generating a tone

waveform by a processor which executes a waveform value calculating process, in parallel with

another process, for calculating a tone waveform value for each sampling timing on the basis of

received performance information as disclosed in the abstract, the method comprising the steps of:

calculating a given quantity of tone waveform values in advance of given read timing, by

executing the waveform value calculating process based on the performance information as

discussed in column 11, lines 52-65; storing the tone waveform values calculated by the

calculation step in storage locations of a storage section indicated by writing location data and

renewing the writing location data as discussed in column 11, lines 61-66; generating a tone

waveform by reading out, from storage locations of the storage section indicated by reading

location data, the tone waveform values at the read timing arriving at given time intervals and then

renewing the reading location data as discussed in column 11, line 66 through column 12, line 4;

and controlling, in response to a difference between the writing location data and reading location

data, calculation progression of the step of calculating as discussed in column 12, lines 4-9.

As recited in claim 26, Tamura discloses a tone waveform synthesizing apparatus

comprising: a storage adapted to temporarily store a plurality of tone waveform samples, the

storage permitting the writing and reading, independently of each other, in a parallel fashion as

discussed in column 11, line 60-66; and a processor (CPU 1) coupled to said storage and adapted

to generate a plurality of tone waveform samples in advance of predetermined reproduction

timing, the processor adapted to control writing of the generated tone waveform samples into said

storage and reading out the tone waveform samples from the storage at the reproduction timing as

discussed in column 11, lines 52-59 and column 11, line 66 through column 12-line 9, the writing

and reading into and from the storage being controlled independently of each other and also in

such a manner that an advance of the writing does not outpace an advance of the reading as seen

in figure 12 (timing chart) and discussed in column 12, line 59 through column 14, line 17.

As recited in claims 28 and 41, Tamura discloses a method of generating a tone waveform,

the method comprising the steps of: generating a plurality of tone waveform samples in advance

of predetermined reproduction timing as discussed in column 5, lines 37-55; writing, into a

storage, the plurality of tone waveform samples produced by the generating step, the storage

being capable of writing and reading, independently of each other, in a parallel fashion as

discussed in column 5, lines 18-21 and lines 24-33; reading out the stored tone waveform samples

from the storage at the reproduction timing as discussed in column 5, line 65 through column 6,

line 22; and controlling writing and reading into and from the storage by the steps of writing and

reading independently of each other as discussed in column 11, lines 52-59 and column 11, line 66

through column 12, line 9, and also in such a manner that an advance of the writing does not

outpace an advance of the reading as seen in figure 12 and discussed in column 12, line 59

through column 14, line 17.

As recited in claims 30, 57, and 68, Tamura discloses a method of generating a tone

waveform based on performance information, using a processor executing a tone waveform

forming process, the method comprising the steps of: receiving performance information and

receiving real-time performance information generated in response to a real-time performance

operation as discussed in column 10, lines 5-9; generating tone waveform samples using the

processor, the step of generating including a step of generating a plurality of tone waveform

samples in advance of predetermined reproduction timing on the basis of the received

performance information and a step of generating a plurality of tone waveform samples in advance

of predetermined reproduction timing on the basis of the received real-time performance

information, the step of generating being capable of generating the tone waveform samples based

on the performance information and the tone waveform samples based on the real-time

performance information in a parallel fashion as discussed in column 10, lines 10-22 and column

11, line 52 through column 12, line 4; and outputting the tone waveform samples generated by the

step of generating as discussed in column 11, line 66 through column 12, line 4.

As recited in claims 31, 58, and 69, Tamura discloses the method, wherein the step of

outputting further includes a step of mixing the tone waveform samples based on the performance

information and the tone waveform samples based on the real-time performance information to

thereby provide mixtures of the samples, each of the mixtures being composed of the tone

waveform samples to be reproduced at a same reproduction timing, and a step of writing the

mixtures into an output buffer as discussed in column 3, lines 22-27 and lines 56-65, column 24,

lines 50-54, and column 25, lines 1-5.

As recited in claims 32, 59, and 70, Tamura discloses the method, wherein the step of

generating further comprises the step of performing arithmetic operations for generating the tone

waveform samples based on the performance information and the tone waveform samples based

on the real-time performance information, independently of each other, in such a manner that an

advance of the arithmetic operations for the tone waveform samples based on the performance

information and an advance of the arithmetic operations for the tone waveform samples based on

the real-time performance information differ from each other as discussed in column 11, lines 11-

25, column 12, lines 40-58, and column 15, lines 25-31.

As recited in claims 33, 60, and 71, Tamura discloses the method, wherein the step of

generating further comprises the step of advancing arithmetic operations for the tone waveform

samples based on the performance information within an extent of an available processing

capability taking into account a current processing capability of the processor as disclosed in the

abstract and discussed in column 11, lines 29-45 and column 19, lines 58-67.

As recited in claims 34, 61, and 72, Tamura discloses the method of generating a tone

waveform using a processor capable executing a plurality of different programs on a time

divisional basis as disclosed in the abstract and as discussed in column 6, line 19-39, the method

comprising the steps of: supplying the processor with application software including at least an

image control program for controlling image display, a music control program for controlling tone

generation, and a general control program, music control program including color data as

discussed in column 23, lines 25-32, column 23, line 59 through column 24, line 3, and column

24, lines 50-65; and causing the processor to execute, under control by the general control

program, the image control program and the music control program in a parallel fashion, to

output image data generated as a result of execution of the image control program and tone

waveform data generated as a result of execution of the music control program as discussed in

column 10, lines 10-15, and column 23, lines 25-32.

As recited in claims 35, 62, and 73, Tamura discloses the method, wherein the supplying

step further comprises the step of including in the music control program, within the tone color

data, waveform data pertaining to at least one given tone color as discussed in column 10, lines 2-

3 and lines 32-52.

As recited in claims 36, 63, and 74, Tamura discloses the method, wherein the supplying

step further comprises the step of including within the music control program a tone waveform

generating program for generating tone waveform samples on the basis of performance

information as discussed in column 10, line 53 through column 11, line 10, and column 12, line 66

through column 13, line 24.

As recited in claims 37, 64, and 75, Tamura discloses the method, wherein the supplying

step further the step of including, with the application software, software directed to at least one

of a karaoke and a game as discussed in column 24, lines 50-54.

As recited in claims 38, 65, and 76, Tamura discloses the method, wherein the supplying

step further comprises the step of supplying the application software to the processor via a

communication network as discussed in column 23, lines 18-24.

As recited in claims 39, 66, and 77, Tamura discloses the method, wherein the step of

supplying the application software to the processor by setting, in the processor, a transportable

medium storage the application software as discussed in column 24, lines 31-43.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 23, 46, 47, 54, and 56, are rejected under 35 U.S.C. 103(a) as being unpatentable

over Gulick.

Gulick is discussed above. Gulick discloses a method of storing wherein the step of

storing includes providing a plurality of buffers (360) for the storage section as discussed in

column 5, lines 59-64 and column 6, lines 5-22.

Gulick does not disclosed that the buffer is a ring buffer.

With respect to claims 23, 46, 47, 54, and 56, Official Notice is taken with respect to ring

buffers being well known in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention

to utilize the well known use of ring buffers with the apparatus of Gulick, because Gulick includes

a plurality of buffers and ring buffers is merely another method or way of storing data.

7.   Claims 27, 29, and 42, are rejected under 35 U.S.C. 103(a) as being unpatentable over

Tamura in view of Gulick.

Tamura is discussed above. Claim 27 depends from claim 26. Claim 29 depends from

claim 28. Claim 42 depends from claim 41.

Tamura does not disclose controlling the write signal for writing samples from a

beginning of a predetermined storage region of the storage and upon arrival at the end of the

predetermined storage, the writing returns to the beginning of the predetermined storage, wherein a write signal does not go ahead of a read signal.

However, as recited in claims 27, 29, and 42, Gulick discloses a tone waveform synthesizing apparatus, wherein the storage permits the writing and reading, independently of each other, in accordance with separate write instruction and readout instruction signals. respectively, and wherein the processor is adapted to control the write instruction signal so that the tone waveform samples are sequentially written into the storage from a beginning of a predetermined storage region of the storage and, upon arrival at an end of the predetermined storage region, the writing of the tone waveform samples returns to the beginning of the predetermined storage region and also that a writing location, in the storage region, indicated by the write instruction signal does not get ahead of a reading location, in the storage region, indicated by the read instruction signal as discussed in column 9, line 43 through column 10, line 10.

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the teachings of Gulick with the apparatus of Tamura, because Gulick enhances the teachings of Tamura, by providing the specific details of how the samples are stored and read out, wherein Tamura provides the same as can be seen from the timing chart discussed above, wherein both teach controlling the reading and writing of waveform samples, wherein the writing does not outpace or go ahead of the reading, thereby maximizing data processing.

Allowable Subject Matter

8.   Claims 1-19, 24-25, 43, 48-50, and 55, are allowed.

9.   Claims 21-22, 40, 45, 52-53, 67, and 78, are objected to as being dependent upon a

rejected base claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marlon Fletcher whose telephone number is (703) 308-0848.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Nappi, can be reached on (703) 308-3370. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

MTF

September 9, 2000

Marlon Fletcher

Patent Examiner

Art Unit 2837